



# Get In, Grab It, Get Out

Location: Southwest Guatemala

Weather Conditions: 84 degrees Fahrenheit, Humidity 48%, Rain 0%

## Day 4: Outside King Ixtua's Library, 8:43 AM

Evan laughed as he watched his uncle slowly pull the twine. His uncle kept trying to grab the basket, but it was still four or five feet away. Evan could tell his uncle was anxious to retrieve the key.

"And I've got it!" Uncle Phillip yelled, his voice echoing down the hallway.

Uncle Phillip stood, turned, and faced the rest of the team, holding the basket above his head.

"Is the pa'aachi inside?" asked Grace, nervousness in her voice. Without the key, the team would be unable to continue its exploration of the tomb.

Evan watched as a smile slowly appeared on his uncle's face.

Uncle Phillip reached into the basket and pulled out an unusually shaped object. He turned it over in his hands, letting Max, Grace, and Evan get a good look.

Made of animal bone, the key was over a foot in length. The key was shaped like a walrus tusk, with one end almost two inches in diameter and the other end a small, dull point. Its surface was covered with carved Mayan glyphs, and the key had a dozen notches cut into it.

Max began taking photographs of the key. "Can you turn it over, please?" He took another photo and then lowered the camera. "I hate to rush things, but can we maybe try it out?" he asked.

Uncle Phillip laughed. "I was thinking the exact same thing. Let's do it," he replied.

## The Throne Room

Uncle Phillip inserted the key into the hole in the floor. When nothing happened, he twisted the key clockwise. From behind the wooden door, the team heard a loud SNAP!

"I think that did it," said Evan.

"I think you're right," replied Uncle Phillip with a smile. "And if I'm right about what is behind that door, we're almost to the king's burial chamber. Max, take a photo of this, please."

Evan watched as Max photographed Uncle Phillip pushing against the large wooden door. He expected a loud creaking sound, but the door opened smoothly.

After the door was open, Uncle Phillip peered into the darkness, shining his weak flashlight around. “Grace, would you bring me those portable lights?”

Grace picked up two of the small battery-powered lights and handed them to Uncle Phillip. “The manuscript states the throne room is safe. No traps,” she said.

“Let’s light up the room first,” Uncle Phillip said. “Just in case.”

Evan watched as his uncle placed the two portable lights on the floor, just inside the room, and turned them on. The lights flickered for a few seconds and then flooded the room with a bright white light.

“Okay, Max. Let me have a few of those bags of sand,” said Uncle Phillip.

Evan had wondered about the six bags that Max had carried in earlier. He had seen Max filling them with sand earlier. He watched as his uncle tossed a bag into the room, followed by another and then another. After Uncle Phillip had tossed all six bags, he took a step into the room. “Give me just a minute,” he said. “Wait until I give the all clear.”

“Be careful, Uncle Phillip,” said Evan, stepping closer to the door to watch his uncle.

“He’ll be fine, Evan,” said Grace. “The manuscript says that when Tupaxu built this tomb, King Ixtua requested that no traps be built in his throne room. He didn’t want anyone hurt or trapped inside.”

Evan continued to watch as his uncle walked slowly around the room, examining the corners, floor, and walls. “So is there anything special about the throne room?” asked Evan.

Grace shrugged her shoulders. “The manuscript doesn’t give us any detail about the room other than it was designed to look just like the throne room the king used when he was alive.”

“But many of the Mayan throne rooms that have been found also contain a secret passage to the burial chamber,” added Max. “This throne room is the last room sketched in the manuscript. The burial chamber wasn’t included. I’m betting that we’ll find the burial chamber connected to this room.”

Evan smiled. “That would be awesome to find,” he said. “My friends will never believe me when I tell them what I’ve been doing this summer.”

Max raised the camera to his eye. “Smile, Evan,” he said as the camera flashed. “We’ll take some more before you go home.”

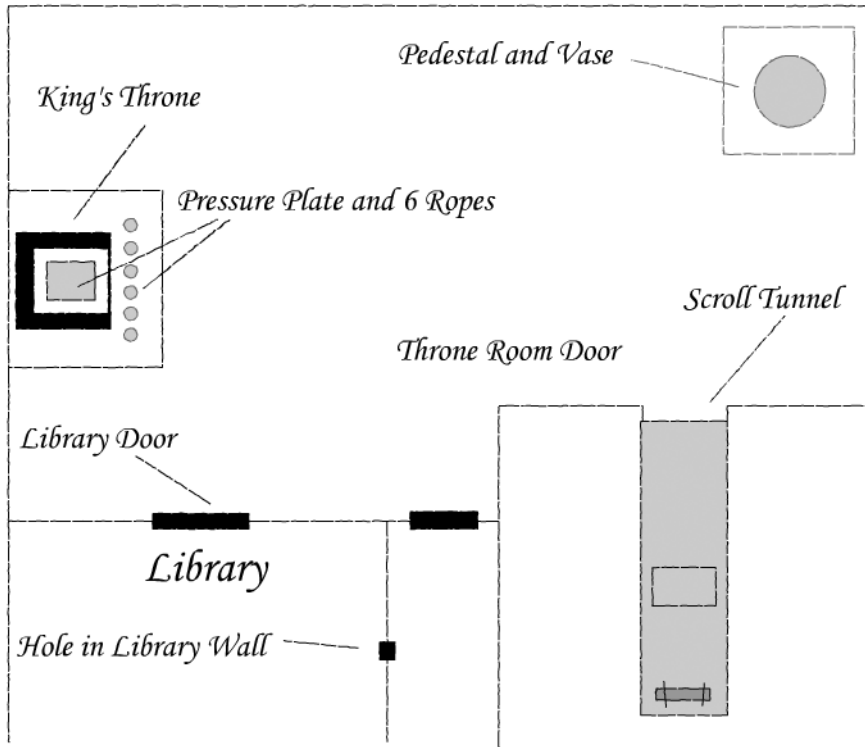
Before Max could reply, Uncle Phillip appeared in the doorway. “Okay, everyone come on in. Don’t touch anything just yet,” he said. “Max, I need you to take plenty of pictures and examine the king’s throne. Grace, I need you to examine the door leading to the library and help me with a pedestal in the room. And Evan, I may have another special project for you.”

## Locate the Burial Chamber

One hour after the team had entered and examined the throne room, Uncle Phillip made an announcement. “Okay, team meeting in the tent. Let’s go,” he said.

As the team assembled and pulled up chairs, Grace placed a large piece of posterboard on the table.

“Okay, looking at Grace’s drawing here, I’ll give you my initial thoughts,” said Uncle Phillip.



**Figure 13-1.** Grace's sketch of the throne room

"Since the manuscript doesn't give us any information on this room, we need to look at what we do have," said Uncle Phillip. "There do not appear to be any doors other than the library door and the door we used to enter. Max examined the throne and there does appear to be a pressure plate that triggers if someone sits down. There are also six small, thick ropes coming up from holes in the floor in front of the throne. There is a very large vase on a pedestal in the opposite corner of the room. Grace and I did not find any traps or similar pressure plates on this pedestal or under the vase. And, finally, there is a tunnel in one wall, about 12 feet deep, with a scroll at the end. Any thoughts? Grace?"

"I think the burial chamber is under the pedestal. If we don't figure out how to open it correctly, though, my guess is that a trap will trigger and close off the chamber permanently," Grace replied.

Max nodded. "The scroll in the tunnel is probably important in some way, too."

Uncle Phillip turned to Evan. "Evan, do you have any ideas?"

Evan looked at Grace's sketch of the room and smiled. "Those six ropes have to be important, too. When I was looking at them, my instinct was to pull them," he replied.

Uncle Phillip smiled at Evan. "I felt the same way. You almost can't resist pulling on them." He leaned back, crossed his arms, and looked at each of the team members. "Well, would anyone like to hear my guess?"

Evan, Grace, and Max all nodded and smiled together.

Uncle Phillip pointed first to the scroll. “We need to get the scroll. I believe I see three pressure plates in the tunnel that will trigger if anything heavier than a monkey, or a robot, crosses over the plates,” he said with a smile and a nod to Evan. “The tunnel is large enough for a person to crawl down it, but I think that’s a trick. If the pressure plates are triggered, the burial chamber will probably be lost to us for good.”

“What about using a long pole with a hook on the end to grab the scroll?” asked Max.

“I thought of that, too,” said Uncle Phillip. “My only concern is that Tupaxu might have thought of that as well. He was very smart. He probably designed the tunnel so that last pressure plate *must* be triggered when the scroll is lifted. It’s probably more sensitive to weight and would guarantee that a small monkey was in the tunnel and not a human.”

Max looked at Evan. “Have we told you how glad we are that you brought that robotics kit with you?” he asked.

Evan smiled. “I can probably get something built to get the scroll,” he replied.

“Good,” said Uncle Phillip. “Because I believe that scroll will have instructions on how to locate and enter the burial chamber. I think that someone will need to sit on the throne, triggering the pressure plate. Once the plate is triggered, my guess is that one of those ropes will need to be pulled. All the other ropes will probably trigger a trap that will also make the burial chamber inaccessible.”

“But what if sitting on the throne triggers the trap?” asked Grace. “Maybe Tupaxu designed the throne only for King Ixtua to sit on?”

Uncle Phillip nodded. “You might be right. That’s why the scroll is so important. I still think it will tell us exactly what we need to do.”

Max and Grace nodded in agreement.

“Evan, why don’t you and Max go and take a closer look at the tunnel. Take any measurements you need, okay? Grace and I will be in the library if you need us. This is important, so take whatever time you need. There is no rush on this one,” Uncle Phillip said.

Max stood up and stretched. “Ready?” he asked Evan.

Evan took a deep breath and let it out slowly. “Okay,” he said. “Let’s go.”

## Scroll Challenge

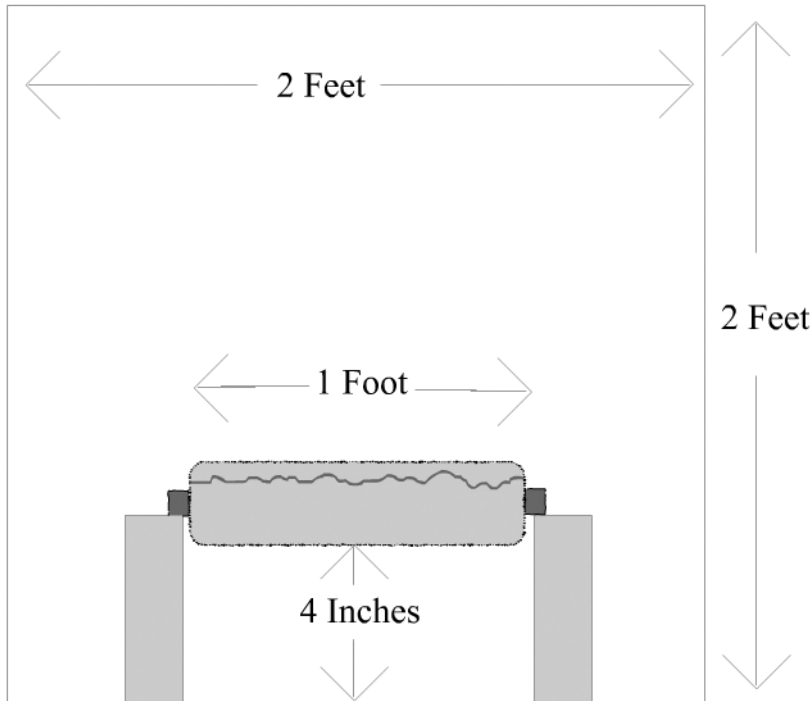
“Two feet tall, two feet wide,” said Max, measuring the height and width of the tunnel entrance.

Evan wrote down the information in his Design Journal. “That gives me plenty of room for a robot.”

Max pointed his flashlight down the tunnel. “The measurements for the scroll will have to be estimates. What do you think? Does the scroll look about a foot in length?” he asked. “Looks about three or four inches from the back wall, too.”

Evan peered down the tunnel. “Yeah, that’s about right. And maybe four or five inches above the tunnel floor?”

Max nodded. “I wish we could be exact, but let’s make it four inches to be safe,” he replied. “I think your uncle is right. That does look like a pressure plate in front of the scroll.”



**Figure 13-2.** *Evan's drawing of the scroll at the end of the tunnel*

"Any idea how much a spider monkey would weigh?" asked Evan.

"No idea, but we'll find out. I guess you can't make your robot too heavy, huh?"

Evan shook his head. "I'll definitely have to keep the weight in mind."

Max smiled and turned off his flashlight. "If I were a monkey, I'd just get in, grab it, and get out," he said. "Fast and simple."

"Well, the motors are fast. But I don't think moving quickly is the right idea. It'd be too easy to make a mistake," said Evan. "As for grabbing the scroll, that's the tricky part, I think."

"Can I make a suggestion?" asked Max.

Evan nodded. "Sure."

"Whatever you build, it doesn't need to be fancy. From what I've seen of your other bots, this one should be fairly basic. Maybe just a simple lifting mechanism to get the scroll off those legs and then bring it back," Max said.

"You're right," said Evan. "But it can't move too fast or it might knock the scroll off the legs. Well, I'm done here."

"Okay. Let's go see your uncle," said Max.

## Max's Solution

"I like Max's idea," said Evan, eating his lunch back at the tent. "I'll have to figure out how to build a lifting mechanism to support the scroll, but I definitely think it'll work."

Uncle Phillip turned to Max. "Maybe two arms?" he asked. "One on the left and one on the right?"

Max shook his head. "I was thinking of something even simpler, like a single lifting crane. Just something to get under the scroll, lift it up, and then haul it back," he replied. "But it's really Evan's decision. He's the one who has to build it."

Evan listened to the ideas being discussed. He knew that the scroll was important. The bot had to function properly or the expedition would probably be over.

"Can you give me three or four hours? That should be enough time to develop something," Evan said.

"Evan, you take all the time you need," said Uncle Phillip. "I don't like putting this kind of pressure on you, so you let me know when you're ready. So far, your little bots have worked perfectly. I have no doubt that whatever you design for the tunnel, it will get that scroll. We'll all be in the library inventorying all the artifacts, so take your time." Uncle Phillip grabbed Evan's shoulder and squeezed it, then turned and left.

Evan pulled out his Design Journal and began to write.

*Story continues in Chapter 17...*